

(43) International Publication Date 4 August 2005 (04.08.2005)

PCT

(10) International Publication Number WO 2005/070132 A3

(51) International Patent Classification⁷:

F16B 7/10

(21) International Application Number:

PCT/US2005/000768

(22) International Filing Date: 14 January 2005 (14.01.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/536,791

14 January 2004 (14.01.2004) US

(71) Applicant (for all designated States except US): ULTI-MATE SUPPORT SYSTEMS, INC. [US/US]; 2506 Zurich Road, Fort Collins, CO 80524 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): EASON, Donald, H. [US/US]; 1909 Turnberry Road, Fort Collins, CO 80524 (US).

(74) Agent: WIEDMANN, Alfred, K., Jr.; Santangelo Law Offices, P.C., 125 South Howes, Third Floor, Fort Collins, CO 80521 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

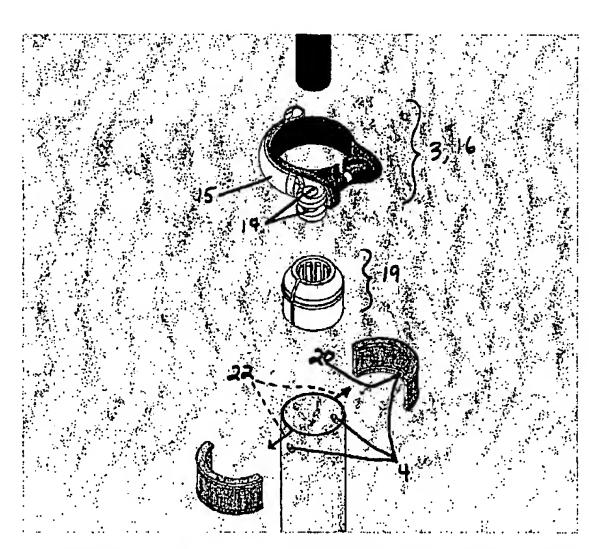
Published:

with international search report

(88) Date of publication of the international search report: 30 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TELESCOPING MEMBER METHODS AND APPARATUS



(57) Abstract: The inventive technology may retate to a retention apparatus (1) that in at least one embodiment comprises a compression sleeve element (2) established at least partially 5 around portions of a first elongated member (6) that telescopes from a larger elongated member (8) in which it may nest. A relative motion obstruction element (4) may disallow only certain types of motion, e.g., rotational and axial, of the compression sleeve element relative to the elongated members around which it may be at least partially established. As it instead may be the compression enhancement element (3) - which may be used to 10 generate a retaining compression force element - that prevents perpendicular displacement of the compression sleeve element, deactivation and effective disengagement of the compression enhancement element may allow for a quick removal of the compression sleeve element without requiring that it be slid off an end of either elongated member.

BEST AVAILABLE COPY

BEST AVAILABLE COPY

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/00768

A. CLASSIFICATION OF SUBJECT MATTER			
IPC(7) : F16B 7/10 US CL : 403/109.1,109.2,109.6,110,289,290,314,320,371,374.5,377,378,379.1,408.1,dig.4			
US CL: 403/109.1,109.2,109.6,110,289,290,314,320,371,374.5,377,378,379.1,408.1,dig.4 According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS SEARCHED			
Minimum documentation searched (classification system followed by classification symbols)			
U.S.: 403/109.1,109.2,109.6,110,289,290,314,320,371,374.5,377,378,379.1,408.1,dig.4			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)			
Dicotionic data base consulted daying the international search (name of case process)			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap	propriate, of the relevant passages	Relevant to claim No.
Х	US 2002/0030146 (Akaike) 14 March 2002 (14.03.20	002), para.0001-0077, fig.1 and 3.	1-41
4.7	US 2,817,548 (Uthemann) 14 October 1955 (14.10.1955), figs. 1-3		1-41
Х	X US 2,817,348 (Uthemann) 14 October 1933 (14.10.1933), 11gs. 1-3		1-41
Α	US 6,830,227 (Nakatani) 14 December 2004 (14.12.2	2004), figs.1-7	1-41
			1
	•		
Further documents are listed in the continuation of Box C. See patent family annex.			
Special categories of cited documents: "T" later document published after the international filing date or			
	t defining the general state of the art which is not considered to be of	date and not in conflict with the applic principle or theory underlying the inve	
	particular relevance		
"E" earlier ap	pplication or patent published on or after the international filing date	"X" document of particular relevance; the considered novel or cannot be considered when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means			alaimed invention somethe
		"Y" document of particular relevance; the considered to involve an inventive step	when the document is combined
		with one or more other such documents, such combination being obvious to a person skilled in the art	
		"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the "&" document member of the same patent family priority date claimed			,
Date of the actual completion of the international search		Date of mailing of the international search report	
13 October 2005 (13.10.2005)		16 NOV 2005	
Name and mailing address of the ISA/US		Authorized officer	
Mail Stop PCT, Attn: ISA/US		Authorized officer Victor MacArthur Victor MacArthur Victor MacArthur Victor MacArthur Victor MacArthur Victor MacArthur	
Commissioner for Patents P.O. Box 1450		Talanhama Na. (571) 272 7005	
Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3600 Telephone No. (571) 272-7085			
r acaminic 140	J. (J11) 21J-3000		

Form PCT/ISA/210 (second sheet) (April 2005)